~~29~~. FOODS AND BEVERAGES

5426/29

1879

Mashing

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RECORDED

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Mashing

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A.D. 1879, 27th *June.* N° 2590.

Brewing.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by Emil Welz and August Rittner at the Office of the Commissioners of Patents on the 27th June 1879.

Emil Welz, Civil-Engineer, of Breslau, and August Rittner, Civil-Engineer, of Schweidnitz, Province of Silesia, Prussia. "An Improved Method of Brewing, and an Improved Apparatus Employed therefor."

Our said Invention relates to an improved method of and apparatus for brewing, and is carried into practice as follows, that is to say:—

We take the raw material, such as malt, or malt mixed with corn not malted, rice, maize, or the like, and grind the same into groats by means of any suitable contrivance. When using corn not malted, we apply the dry process for taking away the hulls, that is to say, the so-called bran immediately after having rough-ground the corn. In this case the meal only is used for the mashing process. The fine groats, that is to say, the meal, are mixed with water, and the mashing process takes place as usual. ✓

After the mashing process has been finished the mash is pumped slowly into a filtering-basin, which we herein term the first filtering basin, and which is provided with two bottoms, the upper one being finely perforated. Being stirred without interruption by means of a rotating stirring-apparatus the thick mash will flow down through the said perforations into another reservoir which we herein term the clarifier. The hulls will remain upon the perforated bottom aforesaid; here we wash them thoroughly with hot water, which will flow down into the clarifier likewise.

The clarifier is made hermetical. Its lower half is conical, being quite narrow at the bottom, where it has an aperture or opening which can be shut up by a valve. This clarifier now contains the entire mash except the hulls. The mash remains here quiet for a certain length of time, the entrance of air into the said clarifier being strictly prevented until the sugaring process has been completed. During all this time the mash is exposed to a high pressure produced by means of compression of either steam, air, or water. In consequence of this pressure the fluid soon becomes clear. The thickening parts go quickly down to the bottom where they settle. Here they form a mass which will be the more compact the higher the pressure which is applied. Most of the fluid standing above the dregs [illegible] entirely clear now; the lower layers only will show some feculency. While the [illegible]s continued without interruption the fluid is let out by means of cocks which are arranged vertically one above the other. These cocks are connected to a pipe leading upward, said pipe being connected by means of a three-way cock to another horizontal pipe leading to the copper. The other aperture of the said three-way cock is connected to another piece of elbow-pipe leading upward into a peculiar filtering-basin, which we herein term the finishing filtering-basin.

This said finishing filtering-basin, which may have any convenient form, contains three boxes with bottoms and lids finely perforated placed one upon the other. The lowest one of these boxes is filled with hops either fresh or that have been already used. Of the hulls remaining upon the perforated bottom of the first filtering basin aforesaid, some are placed loosely in the middle one, of the said boxes, while another quantity of the said hulls are packed tightly into the topmost one of the said boxes.

The pipe leading upward from the cocks aforesaid is divided into two pipes, which are united again into one before they reach the three-way cock above mentioned. Part of one of the said two pipes is made of strong glass in order to allow observation to see whether the wort passing through the pipe in its upward course is becoming thick or feculent. If this should happen to be the case, the three-way cock is turned in such manner as to stop the aperture connected to the pipe leading to the brewer's copper and to open on the other side, the latter being connected to the pipe leading to the said finishing filtering basin. The thick wort in consequence of the pressure prevailing in the clarifier aforesaid moves upwards and passes through the filtering arrangement of the said finishing filtering basin. Here it comes out clear at the top, and flows off through a pipe fitted into the said basin near its top and leading it to the brewer's copper. The compact mass of dregs remaining at the bottom of the clarifier is driven out through the aperture at the bottom, after opening the valve aforesaid by means of the pressure still existing in the clarifier.

The quantity of wort contained in the dregs is very small, and it will be less the higher the pressure which was applied. Still by far the largest portion of the said small quantity of wort may be obtained by mixing the said dregs or sediment with hot water, and by scooping off and emptying into the copper the clear fluid standing above the compact mass after the said mixture has settled down.

The wort is boiled in the copper with the hops as usual, during which process the well-known flocculent precipitate is formed. After the boiling is finished the wort is passed through the hop-sieve in order to take away the hop leaves, and again it is poured into the said clarifier, and again it is exposed to a high pressure in the same manner as before, in consequence of which pressure the flocculent precipitate soon settles down at the bottom a compact mass. The fluid standing above the said mass or sediment is led to the cooling vat, or other cooling apparatus, and is treated as usual.

By means of this method the useful contents of the raw material are entirely extracted, and consequently it will afford greater profit to brewers than was obtained with the methods heretofore in use.

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